

US EPA ARCHIVE DOCUMENT

WEST VIRGINIA'S NON-POINT SOURCE PROGRAM



ANNUAL REPORT FISCAL YEAR 2005





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Mission and Goals

Non-point Source Program Mission Statement:

To implement dynamic and effective non-point source programs to enhance and preserve the physical, chemical and biological integrity of surface and groundwaters, considering nature and health, safety, recreational and economic needs of humanity, with a focus on a watershed management approach.

Non-point Source Management Plan 2000

The Non-point Source Program supports the efforts of four WV state agencies to reduce non-point source pollution from various land use activities; WV Department of Environmental Protection, WV Conservation Agency, Division of Health and Human Resources and the WV Division of Forestry. The base non-point source programs' goals are to:

- ❑ Provide technical assistance in the proper installation and maintenance of best management practices (BMPs).
- ❑ Educate the public and land users on non-point source issues
- ❑ Support citizen based watershed organizations
- ❑ Support enforcement of non-point source water quality laws
- ❑ Restore impaired watersheds.

The goals of these programs were spelled out in the *Non-point Source Program Management Plan 2000*.

The major goals and objectives for FY 05 included:

- ❑ Complete the first Upper Buckhannon project and assess the results to update the WBP.
- ❑ Begin the implementation of the Lamberts Run WBP.
- ❑ Expand the techniques used by the NPSP for passive treatment of AMD, including exploring the possibility of a mix of active and passive treatments.
- ❑ Obtain approval for the Lower Cheat and Morris Creek WBPs and develop two new WBPs.
- ❑ Implement volunteer monitoring for sediment impacts and coordinate its use in a project watershed.
- ❑ Improve project monitoring to better quantify environmental results.
- ❑ Hold a "Getting in Step" workshop to build capacity in NPS outreach.
- ❑ Complete the Spring Creek, North Fork of South Branch, Long Branch and Robinson Run projects.

This report highlights the activities and accomplishments of West Virginia's Non-Point Source Program for FY 2005, October 1, 2004 to September 30, 2005.

Executive Summary

West Virginia's Non-Point Source Program (NPSP) in FY 2005 (October 1, 2004 to September 30, 2005) focused most of its effort on developing and implementing Clean Water Act Section 319 Incremental projects and Watershed Based Plans (WBPs). The Program has completed and closed most of the older incremental projects. Newer projects from FY 04 have progressed through the engineering phase and in some cases entered into the implementation phase. Meanwhile FY 05 projects have gone to engineering. The NPSP leads watershed project teams that are stakeholder committees who act as a coordinating and review board for priority watersheds. These project teams are creating the broad public support and partnerships necessary for a successful restoration effort.

To broaden the scope of activities of the NPSP a request for proposal was initiated, called an Announcement of Grant Opportunity (AGO) it resulted in seven projects. The results of these projects were: one workshop on on-site sewage treatment alternatives with 28 people, three workshops on non-point issues with representatives of five watershed associations, 125 storm drains marked, hazard waste collection day, two manuals on waste water and storm water treatment and the stabilization of 230 feet of eroding stream bank that had lost an estimated 12.4 tons of sediment.

The mission of the NPSP is to both support efforts to prevent non-point source pollution and to restore watersheds impaired by such pollution. A wide range of activities the base program supports are education, outreach, technical support, volunteer monitoring and support for the statewide watershed management stakeholder process. The NPSP staff is an integral part of the entire watershed management effort. WV relies heavily on the base program to foster watershed groups and agencies to prepare them for and support them through the challenging process of developing and implementing watershed based plans. In addition the NPSP uses some of the base funding to support special projects in watersheds that are threatened but not part of a TMDL.

In watersheds with a TMDL the NPSP's incremental program focuses its effort on water quality restoration. Some major accomplishments in the incremental program included successful efforts to improve water quality in the North Fork of the South Branch of the Potomac and the Cheat Rivers. All incremental projects funded by FY 00 and FY 01 incremental funds have been completed. This included the efforts in the North Fork, Spring Creek and Robinson Run. The first phases were completed in the Upper Buckhannon, Cheat and Deckers Creek. In addition three new WBPs have been approved, two are being updated and two more are being developed.

FY 2005 Active and Proposed Projects

Table 1

Special Projects

North Fork (2 grants)	\$565,670	Completed
Spring Creek (2 grants)	\$300,850	Completed
Upper Buckhannon (2 grants)	\$820,004	1 Completed 1 On Schedule
Robinson Run	\$80,000	Completed
Perennial Grass Buffers	\$130,352	Completed
Cheat River II	\$420,774	Completed
Blaser AMD	\$240,000	Completed
Mudlick Refuse & AMD	\$90,000	Completed
Long Branch AMD	\$116,808	2006
Watershed Based Plans	\$100,000	90% Completed
Inwood	\$106,800	2006
Lower Elk	\$125,854	2006
Upper Elk (Base)	\$107,090	On Schedule
Slab Camp #2 AMD	\$186,500	Completed
Morris Creek AMD	\$341,060	2006
Kanes Creek AMD	\$57,808	2006
Lamberts Run AMD	\$569,000	2006
Muzzleloader Club AMD	\$106,663	2006
Cheat River AMD III	\$333,829	2006
Monitoring	\$36,000	2006
Total 20 projects 22 grants	\$4,835,062	

Table 2

New Projects for FY 2005 and 2006 319 Incremental Funding

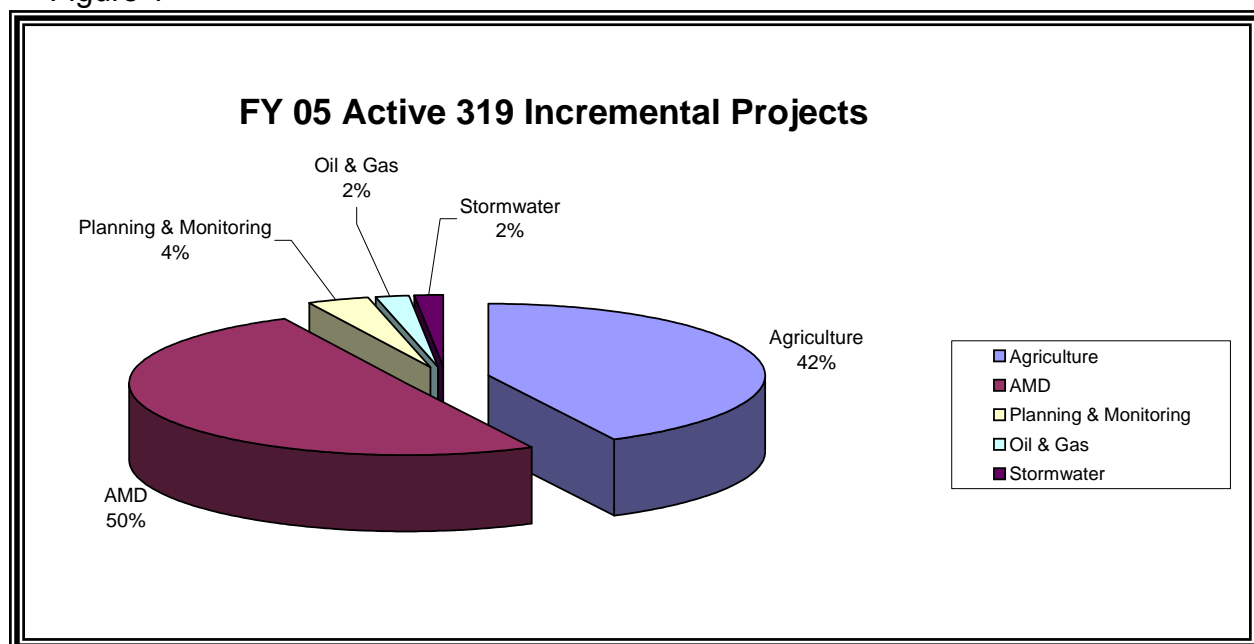
Proposal	319 Funding Request
Poponoe Run Urban	\$250,000
Spring Creek Extension	\$179,994
S.F. Greens Run AMD	\$61,576
Muddy Creek AMD	\$288,391
Morris Creek Stream Bank Phase I	\$41,139
Valley Highwall / Kanes Creek AMD	\$237,694
Lost River	\$215,682
Morris Creek Stream Bank Phase II	\$161,600
Total 5 proposals	\$2,494,858

It is difficult to calculate the true economic value of clean streams with increased recreational opportunities and reduced drinking water treatment costs, but the economic value of the incremental projects can be calculated. Since the start of the 319 incremental grant program \$6,152,431 has come to West Virginia from this federal grant. When considering the matching funds of \$5,154,129 contributed by recipients, volunteers and the state the total economic contribution of 319 projects is \$11,306,560 (Appendix A - 3). This does not include the nearly equal amount of funding for the base program that provides the infrastructural support for the projects as well as some project money. The NPSP does not work alone, other state and federal programs are involved in watershed efforts along with the contributions of local stakeholders. When considering all the resources contributed the economic value of the state-wide effort increases.

One such cooperative effort was the North Fork of the South Branch of the Potomac. Resources from the U.S. Department of Agriculture, the W.V. Department of Agriculture, the State Revolving Fund, the NPSP and the local stakeholders has resulted in the 46 miles of the North Fork being removed from the 303(d) list and placed in the Category 1 list, attaining water quality standards and no use threatened.

With the passage of the Farm Bill and the focus on TMDLs the NPSP has been gradually shifting its focus from agriculture to acid mine drainage (AMD) treatment. The chart below displays the breakdown of total 319 incremental funding for the various projects. This chart includes all projects that had some activity in FY 2005 including those that have been completed but are still being monitored.

Figure 1



The purpose of these incremental projects is to reduce the pollutant load in the rivers. Load reduction estimates can be made for the agricultural and other non-AMD projects based on modeling of BMP efficiency (Table 3). Load reduction estimates are available on those AMD projects that have been completed and monitored (Table 4).

Table 3

Load Reductions for Non-AMD Projects

Project	Nitrogen lbs	Phosphorus lbs	Sediment lbs	Aluminum lbs	Iron lbs
North Fork South Branch	1,088,400	1,318,200			
Upper Buckhannon	743,600	954,200	2,915,000		
Robinson Run	30,778	11,323			
Spring Creek	34,999	10,769	3,176,190	208,301	2523
Duck Creek			74,400		
Jenkinsburg Landing			1,024,000		
Totals	1,897,777	2,294,492	7,189,590	208,301	2523

Table 4

Annual Load Reductions for AMD Projects

Watershed	Project Site	Average Reductions in tons/year			
		Acid	Iron	Aluminum	Manganese
Cheat	Sovern #62	44.35	9.71	2.95	-0.1
	NF Greens (portals)	22.01	5.1	1.09	0.1
	NF Greens (refuse)	1.18	1.46	0.14	-0.01
	Pace	8.86	0.34	0.3	0.3
	Blaser	36.76	12.15	2.25	-0.04
	Upper Muddy Creek	92.92	3.79	7.63	2.37
	Clark (Sovern Run)	16.54	0.62	0.54	1.5
	* Tichnel (Sovern Run)	163.54	-0.49	1.83	-13.83
Totals		386.16	32.68	16.73	-9.71

* Water flow at the Tichnel site has tripled since the construction of the project. This project also illustrates the difficulty in treating manganese with passive systems.

Over the last three years the NPSP has focused much of its effort on restoring the Cheat River. This effort is the largest restoration effort in the NPSP with \$959,197 spent in completed or ongoing projects and \$683,391 in future

projects approved. Assessments of the fisheries by the WV Department of Natural Resources and anecdotal evidence shows the Cheat River is improving. But, there is much more to be done in this heavily polluted river. The Friends of the Cheat were awarded a Targeted Watershed Initiative grant to support a focused effort in Martins Creek, a significant source of AMD to Muddy Creek. This initiative will involve a partnership between the Special Reclamation Program, the National Mine Lands Reclamation Center, the Friends of the Cheat and the NPSP to install a variety of treatment options and compare their results.

West Virginia's NPSP maintains an active outreach, education and technical assistance component. NPSP staff presented a wide variety of educational programs to hundreds of individuals and dozens of groups. Through environmental field days at local schools, 1765 youth and adults were informed of the importance of preventing non-point source pollution. In addition a construction demonstration workshop was presented in the Eastern Panhandle to 64 contractors and local officials.

The WV Save Our Streams Program (WVSOS), the volunteer monitoring component of the NPSP, held 44 workshops for education and training for citizens with 1066 participants. The program certified 331 volunteer monitors, 34% were new to the program. The program coordinator received and reviewed 76 surveys during this period.

For timbering and oil and gas extraction activities, The WV Division of Forestry conducted 76 workshops for 2,009 loggers, 410 new logger certifications and conducted 6,684 investigations. The WVDEP Office of Oil & Gas conducted 22 oil and gas workshops for 616 contractors.

Getting In Step: A Workshop on Conducting Effective Outreach Campaigns was held on April 20, 2005. It was attended by over 50 representatives from watershed associations, agencies, MS4 communities, and other non-profits. Funded by a grant from EPA it provided information on how to develop an outreach campaign; target audience, format, real examples of outreach ideas and case studies were all provided.

Gretchen Cremann WVCA Project Manager for the 319 North Fork Incremental Project provided a presentation before the National Working Lands Summit in Raleigh, NC. The presentation focused on the success of the project and the improvements of water quality within the North Fork River. The North Fork Project was one of four 319 projects highlighted during this session.





Program Overview

The West Virginia economy has traditionally been heavily dependent on extractive industries such as mining, logging and oil and gas in the central part of the state. In the eastern and western regions agriculture plays a major role. Development has increased through out the state and is causing serious problems in suburban areas and popular vacation areas. Both traditional and changing land use activities have contributed to the non-point source pollution of the state's waters. Most of the TMDLs in the state call for most of the pollutant load reductions to come from non-point sources. As such, the CWA 319 funds are being used as a major source of TMDL implementation funding. The NPSP staff funded under the Base Grant have devoted much of their efforts towards developing and implementing Incremental Grant projects.

The specific pollutants originating from non-point sources are as varied as the land uses. Heavy metals such as iron, aluminum and manganese are common in waters polluted from abandoned coal mining but they also are prevalent in streams affected by heavy sedimentation. Nutrient and bacterial non-point source pollution comes from agriculture and inadequate residential wastewater treatment. Failing septic systems and straight pipe disposal poses public health risks as well as water quality problems in older and rural communities. Treating residential sewage is a daunting and expensive problem.

West Virginia's Non-Point Source Program focuses on solving these problems through encouraging, educating and assisting local stakeholders in voluntary correction of non-point source problems. The NPSP is a major component of West Virginia's Watershed Management Framework (WMF) that serves to combine the resources of state and federal agencies along with stakeholder groups to seek restoration of watersheds to water quality standards. Forming partnerships with these other groups is an important component of any successful endeavor. The most successful efforts have been those where local stakeholders have provided the impetus for the projects.

The partners funded through the CWA 319 Base Program are:

- **The West Virginia Department of Environmental Protection (DEP) Division of Water and Waste Management (DWWM)** is the designated lead agency in the state for the Nonpoint Source Program (NPSP). As such it is responsible for the administration of the program and reporting requirements including the Grant Reporting Tracking System (GRTS). The management of Program components is managed through the DWWM Program staff to ensure a consistent statewide effort. The Program partners with the Watershed Assessment Branch of DWWM for monitoring and TMDL development.
- **The West Virginia Conservation Agency (WVCA)** is the lead agency for the construction and agriculture components for the Program. The

agriculture component of the nonpoint source program partnership consists of the West Virginia Conservation Agency, USDA Natural Resources Conservation Service, and the 14 Conservation Districts. The construction component of the nonpoint source program provides technical assistance and education to landowners, contractors, developers, and local governments in West Virginia.

- **The West Virginia Division of Forestry (DOF)** is the lead management agency for implementation of the silviculture nonpoint source pollution programs. The Division's Water Quality Program addresses training and education, cooperative efforts with associated governmental agencies and monitoring of timber harvesting through licensing, certification, job notification and posting.
- **The DEP's Office of Oil and Gas (OOG)** is the partner whose role is the promotion of proper best management practice design and installation and maintenance on oil and gas drilling sites and access roads.
- **The Department of Health and Human Services (DHHR)** is to focus on the issue of failing septic systems.



Representatives from partnering agencies and watershed association examine a stream bank stabilization project.

Other major partners with the NPSP on incremental grant projects are:

- **The National Mine Lands Reclamation Center (NMLRC)** provides technical assistance and implementation on many of the program's AMD projects.
- **The WVDEP Abandoned Mine Lands Program (AML)** also provides technical assistance and implementation on AMD projects.
- **The U.S. Office of Surface Mining (OSM)** is a partner in funding of AMD projects through the Watershed Cooperative Agreement Program (WCAP).
- **The National Resource Conservation Service (NRCS)** is a partner involved in agricultural projects.
- **Citizen Watershed Associations** are the citizen volunteers who provide much needed local support, information and resources.

Major Accomplishments for FY 2005

In FY 2005 West Virginia's Non-Point Source Program expanded its role in planning, designing and implementing watershed restoration projects. At the same time there was an increase in the general outreach and education activities. At the end of FY 2005 the incremental projects funded during FY 2000 and 2001 were completed. These included major projects in the original priority watersheds. The goal of restoring the North Fork of the South Branch of the Potomac has been accomplished and the continuation of restoration in other priority watersheds is being done with later CWA 319 grants, Farm Bill programs, watershed association assistance and other state and federal programs.

Listed below are the goals for FY 2005 for the NPSP from the FY 2004 Annual Report.

- ❑ Complete the first Upper Buckhannon project and assess the results to update the WBP.
- ❑ Begin the implementation of the Lamberts Run WBP.
- ❑ Expand the techniques used by the NPSP for passive treatment of AMD, including exploring the possibility of a mix of active and passive treatments.
- ❑ Obtain approval for the Lower Cheat and Morris Creek WBPs and develop two new WBPs.
- ❑ Implement volunteer monitoring for sediment impacts and coordinate its use in a project watershed.
- ❑ Improve project monitoring to better quantify environmental results.
- ❑ Hold a "Getting in Step" workshop to build capacity in NPS outreach.
- ❑ Complete the Spring Creek, North Fork of South Branch, Long Branch and Robinson Run projects.

The activities needed to work towards these goals are carried out by the Basin Coordinators, Environmental Specialists, Volunteer Monitoring Coordinator and administrative personnel supported by the CWA 319 base grant. The base grant supports outreach, education, monitoring, planning, administration and non-TMDL projects. The TMDL implementation projects, project management, planning and monitoring of projects is supported by the incremental grant. The two components compliment each other and the intermingling of activities from each occurs often.

THE BASE PROGRAM

VOLUNTEER MONITORING: The West Virginia Save Our Streams (WVSOS) program sponsored by the CWA 319 base grant, is responsible for training, recording and qualifying water quality data collected by citizens. This program serves as one of the most important support mechanisms for the watershed movement. WVSOS offers multiple layers of involvement for citizens from elementary education to quality assured data.

WVSOS Coordinator, Tim Craddock (right), has worked tirelessly to promote the program and find new innovative uses for volunteer monitoring. In October 2004 two workshops were coordinated with high school science teachers in Monroe and Mercer counties that will be part of the science curriculums and be one of the primary activities of the schools after-school Environmental Science Clubs and summer learning programs.



At higher education levels stream workshops were held at Glenville State College, Alderson Broaddus College and West Virginia Tech.

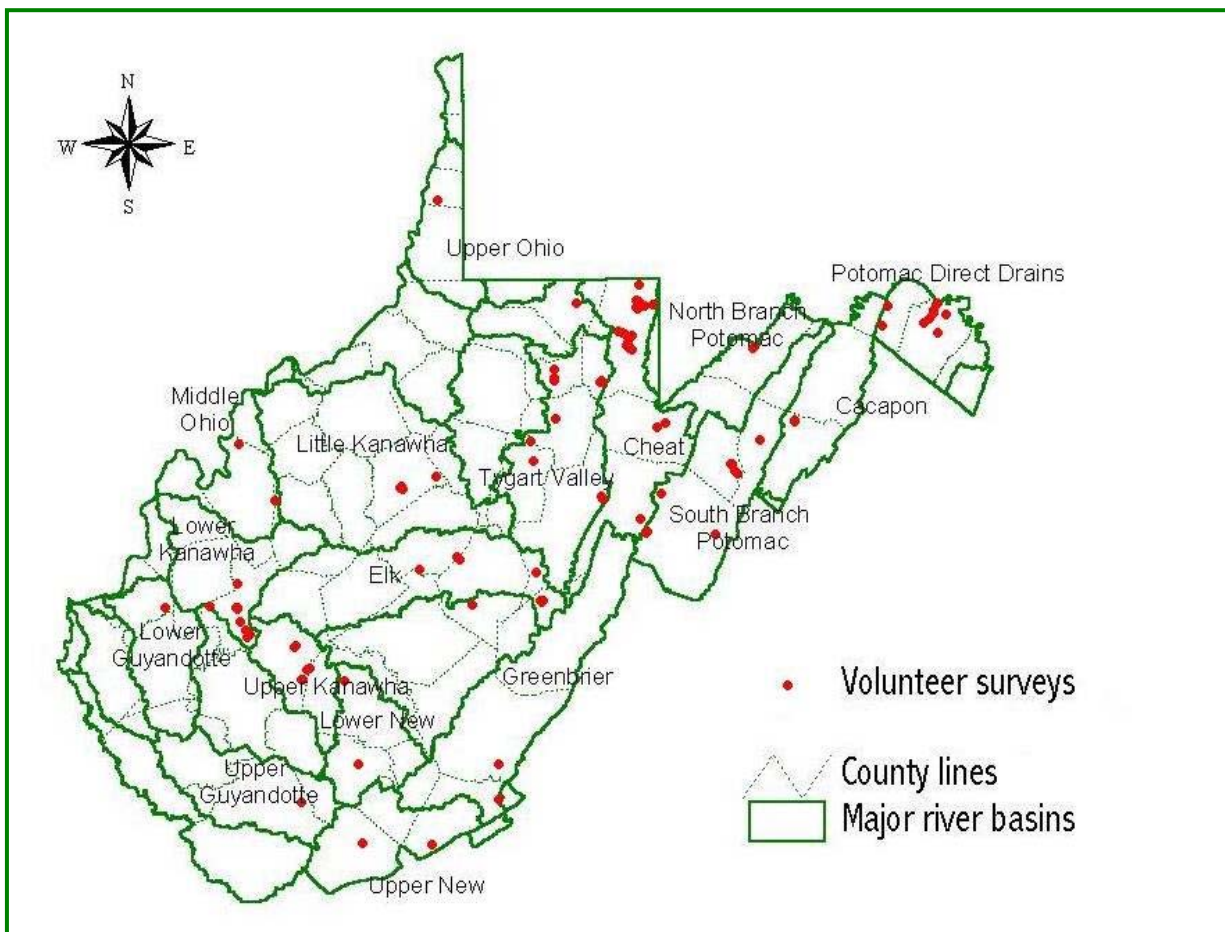
Citizen monitoring has become a valuable tool for the NPSP to engage and educate local citizens to support efforts to clean their stream. Much of the emphasis of the WVSOS has been to train citizens in data collection in support of watershed restoration projects or planning. In FY 2005 approximately 1066 persons participated in WV Save Our Streams workshops. The seasonal breakdown of these numbers is as follows: spring 33.8%, summer 55.3%, and fall 10.0%. Of the 1066, about 53% attended stream monitoring workshops while the remainder attended other types of program workshops. The program certified 331 volunteer monitors, 34% were new to the program.

The program coordinator received and reviewed 76 surveys during this period. Figure 2 illustrates a West Virginia map, which shows the approximate survey locations within the major watersheds. Additional surveys received but not included here are related to special chemical studies and geomorphological surveys.

This year a new tool has been developed to further refine data handling, reporting and quality control. The **Volunteer Assessment Database (VAD)** is a huge program development step and will provide improved data management and manipulation capabilities as well as a place where all WV Save Our Streams volunteer monitors can view their surveys. The VAD has several screens (categories) and enables volunteer monitors to register and enter their data through its interfaces. The program coordinator (administrator) maintains the

VAD and is responsible for reviewing and approving all surveys entered. The administrator also has the ability to limit access as necessary and can delete all surveys entered by any person currently registered. The VAD also has a mapping interface, which shows the location of the survey on a USGS topographic map if latitude and longitude coordinates are provided. The VAD is now online at: <http://www.wvdep.org/dwwm/wvsos/vad/index.htm>.

Figure 2: WVSOS Survey Locations



Due to the expanding interest in volunteer generated information by a variety of agencies and others, and the additional services offered by WV Save Our Streams, there is more demand for the program's involvement in special projects and research related to water quality. Table 5 provides several examples of these projects and partnerships.

In November West Virginia hosted the Region III Volunteer Monitoring Conference. During FY 05 the NPSP coordinated the committee organizing this event.

Table 5: Special WVSOS Projects

Projects	Partners
Spring Run: This is a long-term monitoring project designed to establish baseline conditions and show the impacts and improvements from changes in operation and maintenance of a fish hatchery facility in the basin.	Friends of Spring Run WV Division of Natural Resources WV Dept. of Agriculture WV Conservation Agency WV Dept. of Environmental Protection Cacapon Institute Potomac Christian Educators
Sand Fork: This is a long-term process using WARSSS (Watershed Assessment of River Stability and Sediment Supply) methods in order to better understand the sediment process and possible correlation with metal water quality impairments in the Little Kanawha River basin.	Gilmer County Watershed Coalition US Army Corps of Engineers WV Dept. of Environmental Protection WV Conservation Agency Canaan Valley Institute Glennville State College Cedarville Community Association
Upper Glade Run Geomorphic Study: This study was prepared in response to dramatic changes to the riparian corridor in this small basin. High school and junior high students attending Camp Caesar in 2005 were used to complete the initial phases of the study design and monitoring. Monitoring will continue as long as possible. The first report can be downloaded from the West Virginia Save Our Streams web page at: http://www.wvdep/dwwm/wvsos .	Webster County WVU Extension Service Natural Resource Conservation Service WV Dept. of Environmental Protection WV Division of Forestry National Park Service WV Conservation Agency WV Division of Natural Resources
Stream Scholars: Stream Scholars is Cacapon Institute's hands-on exploration of stream ecology and conservation for middle and high school students. The scholars perform a variety of physical habitat assessments, chemical analysis using field and laboratory equipment, and use macro-invertebrates to assess stream health. For the first time, we included detailed physical surveys of the study stream to establish a benchmark for future comparisons.	Cacapon Institute Chesapeake Bay Foundation WV Dept. of Environmental Protection WV Dept. of Agriculture Bakers Run Conservation Society
Upper Morris Creek Study: This was a special month-long project with the Civil Engineering Class at WV University Institute of Technology. The students in the class were introduced to advanced WV Save Our Streams methods and participated in special weekly activities associated with each step of the stream study process.	WV University Institute of Technology Morris Creek Watershed Association WV Dept. of Environmental Protection

OUTREACH AND EDUCATION: With support from EPA the NPSP organized and conducted a Getting In Step workshop on “Conducting Effective Outreach Campaigns”. Over 50 representatives from watershed associations, agencies, MS4 communities, and other non-profits attended this very successful workshop, held on April 20, 2005. Information on how to develop an outreach campaign, target audience, format, real examples of outreach ideas and case studies were all provided by guest speakers from the Tetra Tech Inc., the Associated Press, WV DEP, Friends of Deckers Creek, City of Beckley, and the WV Conservation Agency.

A total of 15 Enviroscope Presentations have been conducted, with audiences totaling 560 students. The Enviroscope Watershed/Nonpoint Source model demonstrates how different land uses affect water quality. The Enviroscope allows the students to visually understand how they contribute to water quality problems and how they can be part of the solution. These presentations were given in normal classroom settings, conservation camp, as well as a “Food for America Day” that involved 300 students ages 4-7.

The Watershed Resource Center participated in Conservation Education Day at Cedar Lakes in Ripley, WV, on June 23, 2005. Jami Thompson (right), Resource Specialist with the WV Conservation Agency, gave an Enviroscope presentation to over 40 students in grades 4 through 8. The students were also provided with educational fact sheets on “Who is Helping the Watershed? Pollution Solutions You Can Do at Home” provided by the WV Department of Environmental Protection.



Other outreach and education events included:

- A brochure was produced through the Watershed Resource Center on the importance of riparian areas. This has been largely distributed statewide and interest remains.
- “Watershed Management” was presented during W.V. State Conservation Camp. WVCA Environmental Specialists made this presentation to 120 youth.
- During the WV Poultry Festival’s Youth Day, a display and presentation were given to the 45 youth on “Careers in Conservation”.
- NPS Pollution information has been presented to 500+ school age children in the Western and Capitol Conservation Districts.
- Presentations have been conducted in 4 counties targeting water quality, stream erosion, agriculture impacts, home owner impacts, and urban effects.

WVDEP awarded a 319 grant to Friends of Deckers Creek (FODC) for a Community Storm Water Education project. In January 2005 the FODC produced ten thousand copies of a four-page storm water insert and distributed them in the Dominion Post newspaper and in August they produced nine thousand more copies. These inserts explained non-point source pollution and storm water, and included practical steps that residents can take to reduce their impacts on local waters. The inserts provided a 10-year history of FODC, provided information on the set up of Morgantown's local storm water system, provided storm water pollution reduction tips and promoted the Household Hazardous Waste Collection Day.

The FODC combined resources from numerous partners to support a comprehensive storm water and hazardous waste program. They partnered with the West Virginia Cave Conservancy and Morgantown Utility Board (MUB) to purchase 300 storm drain markers and then with 20 local volunteers installed approximately 125 storm drain markers throughout downtown Morgantown and adjacent residential areas. The remaining markers will be installed in the spring of 2006. They combined the 319 grant with two grants, \$5,000 from the NiSource Environmental Challenge Fund and \$2,000 from the Oakland Foundation, and contributions from MUB, Monongalia County Solid Waste Authority, the City of Morgantown, the Town of Star City, United Bank, and West Virginia University for a total of \$22,500. The result was the Monongalia County Household Hazardous Waste Collection Day, which took place on October 8th, 2005. The event drew over 130 vehicles.

Support for the FODC was part of a special project for the WVDEP Non-Point Source Program, granting small grants called Announcement of Grant Opportunity (AGO) grants. Other education projects were conducted, some of those will be covered in this report in the section on Residential Wastewater. One AGO was provided to the WV Rivers Coalition for general non-point source workshops. Two were conducted providing training to five watershed associations.

RESIDENTIAL WASTEWATER: Also referred to as failing septic systems, has always been a non-point source concern in West Virginia. Finding solutions to this prevailing problem is difficult. The most common and consistently effective solution is to hook homes to a sewage treatment plant. The backlog of requests from communities for financial support from the State Revolving Fund (SRF) is about ten years. It is not economically feasible to connect many of the smaller communities in the state to sewage treatment plants. The NPSP is focusing on helping these small communities and individual homeowners in targeted watersheds. Two efforts are occurring in the southern part of the state, one in the upper Tug Fork watershed and one in the Upper Guyandotte. The NPSP along with the Canaan Valley Institute (CVI) are assisting watershed groups in these watersheds develop watershed based plans to treat failing septic systems.

Through the AGO grants the NPSP supported other education efforts regarding this issue. The WV Rivers Coalition (WVRC) hosted a workshop on wastewater issues that was attended by five watershed associations. The group discussed community based solutions to the wastewater issues. The WVRC and CVI are developing a manual on wastewater issues. In another NPSP supported effort the National Environmental Services Center (NESC) conducted a workshop on managing onsite/decentralized wastewater treatment systems. The 28 citizens from watershed groups learned how to monitor for failing septic systems, available technical assistance and how to communicate and partner with county officials to reduce fecal coliform pollution from wastewater. A training handbook was developed to provide additional resources for attendees after one workshop.

STREAM BANK RESTORATION/STABILIZATION: Most stream bank restoration work is conducted through the incremental grants but in 2005 some projects were funded from the base grant. With funding from the 319 Base Grant, coordination by Jennifer Skaggs, WVCA Environmental Specialist, and cooperative partnership with the Greenbrier Conservation District, Friends of The Second Creek Watershed Association, the West Virginia Conservation Agency's Watershed Technicians, and the landowner, approximately 1,000 linear feet of stream bank was restored within the Second Creek watershed. Four in-stream structures were installed in order to re-establish the stream banks and aide in sediment transport. After the structures were installed, the stream banks were sloped and re-seeded to establish a riparian area. Through this work the sediment load to the stream has decreased, fish habitat is increased and the entire stream channel is more stable and functional.

Before



After



An AGO funded stream bank stabilization project combined the resources of the WVDEP NPSP Basin Coordinator, the Guardians of the West Fork watershed association, the Harrison County Solid Waste Authority to install an innovative solution to stream bank erosion. The Watters Smith State Park bank stabilization project concerned two 115 ft sections of collapsing stream banks along Duck Creek. The banks were regraded and fitted with three lifts of

compost filled socks that were staked in place. The lower socks were planted with live willow stakes that will send out a root system to stabilize this innovative stream bank restoration technique. The upper socks were placed with seed and also staked in place. The upper most part of the regraded area was installed with a seeded compost blanket. A company from Ohio, Filtrexx Inc supplied the innovative technology. The area conservationist from the WV Conservation Agency estimated that 5.4 tons of loss at the lower site and 7 tons of loss on the upper site were eliminated.

The Watters Smith State Park Bank Stabilization Project



1. Duck Creek prior to stabilization



2. Filtrexx employees blow composted organic waste into a "sock" at the toe of the bank.



3. The socks staked into place and the sloped bank seeded and composted.



4. Vegetation takes hold.



5. Lou Schmidt, WVDEP's Basin Coordinator for the Monongahelia, explains the project to representatives of WVDEP, WVCA and the West Fork Conservation District.

Another AGO grant project combined stream access work and road restoration in the Cheat River watershed, the Jenkinsburg takeout. This area is the only takeout for the Cheat below Cheat Canyon and the lower Big Sandy, both popular whitewater runs that draw thousands of canoe, kayak, and rafting enthusiasts to the area each year. It is also a popular place for swimming and picnicking in the summer. But the area has also been the scene of considerable abuse. Heavy use by ATV riders and party groups had caused considerable damage over the last two decades. The area has been notorious for waist-deep mud holes. An estimated 512 tons of soil were lost and erode into the river from the roads and ramp.

This project required grading, liming and seeding the vast disturbed parking areas, ATV trails and the launch ramp for kayaks and canoes. Parking areas and official roads were graveled and the ramp was stabilized with Geoweb and then gravel. Then all “unofficial” ATV trails were blocked with large boulders.

Before**After****Takeout Ramp**

CONSTRUCTION: Sediment and Erosion Control Plans were reviewed and technical assistance on best management practices was provided to several contractors and developers for sites under 1 acre. Research and preparations were made for a sediment and erosion control workshop to be held in October 2005. A Contractors Demonstration was presented at Warms Springs Middle School in Berkeley Springs, WV. Presenters were the Morgan County Planning Commission, ACF Environmental and F & M Erosion Controls. They demonstrated new and innovative sediment and erosion control techniques and



Robert Connelly, ACF and workers from F & M Erosion Controls, explain how to properly install silt fence.

also gave demonstrations on proper installation of silt fence, stabilizing construction entrance sites, turf reinforcement and a triangular silt dike. Partners who made this demonstration a success were the Eastern Panhandle Conservation District, the West Virginia Conservation Agency Watershed Resource Center, the USDA Natural Resources Conservation Services, ACF Environmental, F & M Erosion Controls, Morgan County Planning Commission and the Chesapeake Bay Program. The audience consisted of 64 representatives

from local contracting companies, the Morgan County Planning Commission, as well as state and federal agencies.

AGRICULTURE: The WV Lime Incentive Program promotes proper grassland management and erosion control. Proper fertilizer application, water quality, soils and grassland management has been discussed with landowners through this program. In addition to accepting applications and being a part of the technical assistance for the program, multiple soil samples have been taken and other necessary tasks have been completed to implement the program.

Other agriculture activities have been limited due to the completion of several 319 projects and the magnitude of the projects involved. Nitrogen testing has been completed on 1,200 acres of land. Due to the lack of rainfall, many farmers were electing not to side dress. Technical guidance has been provided on the design and installation of four large animal waste facilities. These will require nutrient management planning and CNMP's on the acreages that will be impacted and utilized for disposal of the animal wastes collected.

Nutrient management training and certification is expected of Environmental Specialists as part of the technical service the WVCA provides to deter water quality degradation. This training is considered essential since the NRCS is now fully occupied with implementing Farm Bill programs. The certification will give WVCA NPSP personnel greater control over CWA 319 funded agricultural and erosion projects.

WATERSHED BASED PLANS:

During FY 2005 a total of five watershed based plans were submitted and accepted by EPA. Another one is expected in early 2006, two more are beginning to be organized and two older ones (Upper Buckhannon and Deckers Creek) are being updated.

THE INCREMENTAL PROGRAM

The incremental program applies CWA 319 and other funds to the implementation of non-point source TMDLs. Most of the projects are located in priority watersheds selected by the WV Watershed Management Framework. These projects are coordinated through a project team made up of stakeholder partners within each watershed.

NORTH FORK OF THE SOUTH BRANCH OF THE POTOMAC: This



project was completed in FY 2005 after five years of activity. It has been documented as a Non-Point Source Program success as part of a multi agency effort to restore this river to water quality standards. In 2004 the 46 miles of the North Fork was listed on the Category 1 list of streams fully supporting its uses. This watershed was the first non-point source priority watershed

selected for restoration efforts. During FY 05 the last of the agricultural practices were installed.

Over the five years of the project, nutrient reduction was calculated based on the best management practices installed. The total reduction for Nitrogen is 2,114.4 tons; reduction of Phosphorus is 2,515.7 tons. Each agricultural contract holder had a nutrient management plan developed. A total of 911.4 acres were managed through nutrient management plans. Sediment from eroding agricultural land was one of the concerns of the stakeholders from the beginning. In 2002 the first natural stream restoration demonstration project was installed in cooperation with the Potomac Valley Conservation District. The demonstration site was a 1000 foot stretch of stream located adjacent to a campground. From this demonstration, two additional stream restoration projects were installed on the adjacent landowners. One of the two involved the protection of a 36" high pressure natural gas line. In cooperation with Columbia Gas, a 2000 foot stretch of stream bank was stabilized. This site was estimated to have contributed 19,360 tons of sediment to the North Fork. The second project involved landowners on opposing sides of the river who were losing five-foot high sections of land during each high water event. It was estimated over 40 tons of sediment has entered the North Fork since 1985 from this site alone. This project totaled over 4000 ft in length and was the more complex of the three projects.

The West Virginia Department of Agriculture's water quality monitoring program proved to be invaluable in the long term collection and analysis of trends. Trends in the North Fork watershed data were determined using three methods; watershed comparisons, seasonal Kendall Trend Tests, and fitting locally weighted linear regressions (LOWESS) to assess the curvilinear trends in the data.

The best management practices installed:

- Fence: 27,324 feet
- Feeding Areas: 9
- Roofs for Feeding Areas: 5
- Alternative Water Sources: 22
- Access Road: 200 feet
- Critical Area Planting: 2.3 acres
- Prescribed Grazing: 1634.9 acres
- Filter Strips: 0.7 ac
- Tree Plantings: 7.5 acres

Total Load Reductions

- Nitrogen: 2,114.4 tons
- Phosphorus: 2,515.7 tons

When comparing the bacteria and nutrient results in the North Fork watershed to other watersheds in West Virginia's Potomac Headwaters Region, it was found that the North Fork watershed reported the lowest overall nutrient and bacteria levels. Due to varying climate and precipitation throughout a given year, there is a strong potential for seasonality in the data. As such, the seasonal Kendall test was performed on each constituent at each site. This test compares the data on a season-by-season basis to determine whether concentrations are affected by seasonality, and whether trends exist in the data. Seasonal Kendall tests distinguish between increasing, decreasing, and insignificant changes throughout the duration of the study. Results from the seasonal Kendall tests show that during the study period all sites along the North Fork as well as Jordan Run had an increasing trend with respect to nitrate concentrations, and a decreasing trend with respect to total phosphorus. Fecal coliform concentrations were shown to be increasing at the Jordan Run and Samuel Run tributary sites, and decreasing at two of the nine North Fork main stem sites. Trends for ammonia were insignificant at all sampling sites.

UPPER BUCKHANNON, FINKS RUN & PECKS RUN: These three sub-watersheds, generally referred to as just the Upper Buckhannon, have a wide variety of impairments including AMD, fecal coliform, sediment and acid. Sediment and fecal coliform bacteria are being addressed by FY 01 and FY 03 incremental grants while AMD was the focus of a project completed by WVDEP's Abandoned Mine Lands (AML) program supported in part by a FY 00 CWA 319 grant. Also involved in restoring these watersheds is the Special Reclamation Program for mines abandoned after 1977 and the WV Division of Natural Resources (DNR) who are treating some headwater streams with limestone for impairment by acid precipitation.

Agriculture: The Upper Buckhannon, Finks, and Pecks Run FY 01 319 Incremental project has come to a close. This project has seen many ups and downs, however it has turned out to be both a very successful and popular program within the project area. \$408,949.32 has been spent within the three watersheds. This grant supported various non-point source issues including agricultural BMP's, AMD and oil and gas roads. Agriculture BMP's were installed within the project area with planning and technical assistance coming from NRCS. There were 6 contracts in the Pecks Run watershed, 3 in the Finks Run watershed, and 2 in the Upper Buckhannon watershed.

During FY 05 the agricultural BMPs installed included 3 water supply systems, 3 heavy use protection systems, 6 roof run off management systems and 2 waste storage systems. (For total BMPs installed and load reductions in this project see side box) The increases in pollutant load reductions from these practices were 129.6 tons of nitrogen, 165.6 tons of phosphorus and 879.9 tons of sediment.

A monitoring program was put into place and implemented on one of the roofed winter-feeding areas installed in the Peck's Run Watershed. \$1,189.50 was spent monitoring the Rohr farm where four unprotected winter feeding areas were combined into one large feeding and waste storage facility. This is being completed in conjunction with the Buckhannon River Watershed Association, WV Conservation Agency and the WV DEP.

The Craddock Pipeline Restoration Project #1 and #2 was completed with many partners including the WV Conservation Agency, WV DEP, Buckhannon River Watershed Association, WV DNR, Columbia Gas, and Coastal Lumber. A total of 68 tons of sediment was eroding from these sites per year. This was reduced to 4.5 tons after the restoration work resulted in a 93.4% reduction. The total 319 cost of both pipeline restoration projects \$19,998.00. The match for this project came from Columbia Gas totaling \$28,885.08.

Total BMPs from FY 01 project:

▪ Pasture and Hayland Planting	10 Acres
▪ Spring Development	3
▪ Watering Facility	8
▪ Pond	1
▪ Well (with pumping plant)	1
▪ Pipeline	3,695 feet
▪ Fencing	3,430 feet
▪ Waste Storage Facility	12,160 sq. ft
▪ Roof Run off mgmt.	8 structures
▪ Animal Use Protection	14,200 sq. ft,
▪ Heavy Use Protection	6,900 sq. ft.
▪ Stream Crossings	3

Total Load Reductions

• Nitrogen	371.8 tons
• Phosphorus	477.1 tons
• Sediment	1,457.5 tons



Upper Buckhannon



Pipeline before project (above),
during (left) and after (below)

Pecks Run



Roofed winter feeding areas are a popular BMP with farmers and the NPSP. They eliminate run off, the knee-deep mud common in unprotected feeding areas and allow for easy collection of manure.

Starting from the top photo going counter clockwise: Farm #14 before, new feeding area on Farm #14, one of 4 winter feeding areas on Farm #15 before, the new combined feeding area and manure storage facility during construction on Farm #15.



AMD – Mudlick Refuse: The Mudlick Refuse project was a large, highly acidic refuse area that had been a coal mining processing area in Finks Run. This project was completed but water quality monitoring for results has not been conducted yet. This project involved sealing and covering the coal refuse area, armoring potential erosion areas, using limestone to reduce acidity in drainage areas and seeding and mulching the entire area.



Bridge Run Experimental AMD Treatment: Bridge Run is a project that everyone wants to see just how it turns out in the end. \$5,090.00 was taken from the Ag. BMP budget and used to drill wells on an AML site located on Bridge Run. The wells will be used to inject

soybean oil into the earth in an effort to control acid mine drainage through bacterial action. The company is doing

The Mudlick Refuse site was discharging AMD from water seeping through it as well as spoil washing directly into Mudlick Run.

Left: The mulching was the last step in capping and covering the Mudlick refuse area. *Right:* Brent Wahlquist of the Office of Surface Mining presents Paul Richter of the Buckhannon River Watershed Association a check for the OSM contribution to the Mudlick Refuse Project.



SPRING CREEK: The multi-year project in Spring Creek in the Little Kanawha River drainage wrapped up in FY 05. A small grant was awarded to continue to fulfill the obligations to farmers who signed up during the project period. The TMDL on Spring Creek was for iron and aluminum. These pollutants are major components of the clay soils in the area and discharge into streams by two methods of transport: 1) via erosion - attached to the clay soil particles, and 2) via solution – low pH in soils allows a portion of the bound iron and aluminum to become soluble and carried into streams during rainfall events. The Little Kanawha watershed has the highest pastureland erosion rate in West Virginia according to the USDA NRCS NRI data. The main problem within the watershed is with overgrazing pastures and eroding winter feeding areas.

There was a logging component to the project but no projects were implemented. Several logged site locations were identified as potential sites for demonstration, but with further investigations they did not meet the criteria that was needed to complete a project. All funding that was to be utilized for these demonstrations was diverted to farm BMP's in an effort to impact some additional farm roads.

During FY 2005:

Totals for Pollutants Reduced and Components Installed in FY 05

Practices Installed

- 1 Stream crossing
 - 1 Roof run off management system
 - 2500 feet of water pipelines
 - 15 Animal watering systems
 - 26,674 sq ft of Animal Use Protection
 - 2000 sq ft of Animal Trail
 - 12,1255 feet of Fencing
 - 3.5 acres of Critical Area Planting
 - 122.5 acres of Nutrient Management Planning
- ###### **Environmental Results**
- 324.38 tons of Sediment reduced
 - 37,540.81 lbs of Aluminum reduced
 - 23,128.09 lbs of Iron reduced

During the entire project:

Cumulative Totals for Pollutants Reduced and Components Installed as of Sept. 30, 2005

Practices Installed

- 539 acres of Nutrient Management Plans
- 32,338 feet of fencing
- 30 feeding areas relocated
- 34 alternate water sources
- 1772 acres of prescribed grazing
- 10,620 feet of exclusion fences (woods & Streams)

Environmental Results

- 5314.35 tons of Sediment reduced
- 861,207 lbs of Aluminum reduced
- 365,500 lbs of Iron reduced
- 149,269 lbs of Nitrogen reduced
- 45,928.9 lbs of Phosphorus reduced

ROBINSON RUN: The Robinson Run project is another agricultural project that was completed in FY 05. The predominant land use in this 5,420 acre watershed is agriculture. There are 1,200 acres of pasture land in the watershed with 1,100 acres identified as severely eroding at the start of the project. Nutrient loading was the primary focus of the project. Five farms relocated feeding areas and constructed feeding pads and manure storage areas. Other practices include creating buffer zones along the creek.

During FY 2005 two additional feeding areas were installed and the irrigation system for a waste lagoon was completed, increased load reductions for these practices were 8817.6 lbs of nitrogen and 5878.4 lbs of phosphorus. The project's total accomplishments are listed below.

Agricultural BMPs Installed and Pollutants Reduced

- 430.2 acres of Nutrient Management Planning
- 10,250 feet of fencing
- 6 Feeding areas relocated away from stream
- 6 Alternative water sources
- 103,2 acres of Prescribed Grazing
- 2 acres of Filter Strips

Environmental Results

- 3,839.1 tons of manure managed
- 30,777.9 lbs of nitrogen reduced
- 11,322.8 lbs of phosphorus reduced



The photo is an irrigation system for animal waste. The waste comes from an Animal Waste Lagoon built by NRCS and the irrigation system is a 319 practice. This allows for even and controlled spreading of the waste over approximately 50 acres of ground on a consistent schedule – not a spring and fall application as before. That will reduce the probability of unintended concentrated run off of wastes.

This has been a cooperative effort in the project between NRCS's EQIP program and the 319 program sharing the costs for many of the practices.

CHEAT RIVER: The Cheat River was featured in the latest Non-Point Source Success Story and is the largest watershed the Program is working in. The Cheat River, which drains the largest uncontrolled watershed in the eastern United States, flows north through north-central West Virginia before draining into the Monongahela River just north of the West Virginia/Pennsylvania border. The lower part of the watershed is the source for most of the AMD that impairs the river and is the focus of the River of Promise Committee. The NPSP is supporting projects in four sub-watersheds with proposals for future projects in at least one more.

These projects are implemented through cooperative efforts of the West Virginia Department of Environmental Protection (WVDEP), the watershed organization, Friends of Cheat (FOC), the National Mine Land Reclamation Center at West Virginia University (NMLRC) and the Abandoned Mine Lands (AML) program.

Sovern Run:

Sovern Run # 62 (NMLRC): The Sovern Run re-working done in September of 2003 continues to perform as it was intended. Reductions from the Sovern #62 are as follows:

Total reduction in acid load: 44.45 tons/year

Total reduction in iron load: 9.71 t/y

Total reduction in aluminum load: 2.95 t/y

Total reduction in manganese load: -0.1 t/y

Headwaters of Sovern Run (Clark property) (NMLRC): The project on the Clark Property was completed in June of this year. The project consists of two steel slag check dams constructed in surface water environments as well as an open limestone channel bedded with steel slag and limestone sand. The channel collects water from three collapsed portals that have had wet-seals installed by WVDEP AML as well as any surface water coming off the site.



Total reduction in acid load: 16.54 tons/year

Total reduction in iron load: 0.62 t/y

Total reduction in aluminum load: 0.54 t/y

Total reduction in manganese load: 1.5 t/y

Headwaters of Sovern Run (Tichnell property) (NMLRC): Construction on the Tichnell property was completed in September of this year. This project consists of 2 steel slag leach beds placed in surface water environments, a limestone bed designed to collect iron as well as an open limestone channel for conveyance.

Total reduction in acid load: 165.54 t/y
 Total reduction in iron load: -0.49 t/y
 Total reduction in aluminum load: 1.83 t/y
 Total reduction in manganese load: -13.83 t/y

Due to construction, the water flowing off of the site has increased three fold, causing an increase in loading for iron and manganese. But actual concentrations of iron have declined by 38%.



The Tichnell property project, as well as several others, illustrates some of the problems encountered in designing passive treatment systems for AMD. The flow and chemical composition of AMD from old ground seeps and mine portals are dependent on large mine pools. Large open spaces underground from past mining fill with water and then discharge wherever it can. A number of variables exist that determine the location and flow of such discharges. In the summer of 2005 a small drought caused some systems to dry up while any disturbance such as construction can open up another location to increased flows.

Pringle Run:

Pringle Run Pase Site (NMLRC): The Pase property project, located just outside of Tunnelton, WV, consists of a vertical flow reactor, a metals collection basin, as well as an open limestone channel to convey the mine drainage into an existing road culvert. A vertical flow reactor contains two components; the first component is a compost filled pond, which drains from the bottom into an anoxic limestone drain. The purpose for the compost pond is to strip the oxygen from the water as well as obtain sulfate reduction from the bacteria living in the compost substrate. The anoxic limestone drain allows the limestone to treat the acidic drainage without iron oxides coating the limestone.

This project was installed in October of 2004, and was efficient in reducing mine drainage for the first several months, since then, the systems performance has decreased. As a result of this decrease, NMLRC, in conjunction with WVDEP and FOC are adding additional treatment measures to the system. These treatment measures involve using steel slag to line the channels from the seeps to the compost filled pond. This should raise the pH to a point where the bacteria present in the pond will be able to perform its purpose more efficiently. Secondly, to the steel slag, additional organic material is being placed into the pond, this will add more bacteria to help break down the mine drainage as well as rejuvenate the bacteria that is already present.

Total reduction in acid load: 8.86 t/y
 Total reduction in iron load: 0.34 t/y
 Total reduction in aluminum load: 0.3 t/y
 Total reduction in manganese load: 0.3 t/y

Pringle Run Blaser Site (AML): The Blaser Site was completed in the spring of 2005. It consisted of the reclamation of coal refuse areas, a total of 6 wet seals, 2 emergency spillways for drainage control and an alkaline generating system for passive treatment of AMD to treat the portal discharges and refuse drainage. The passive treatment system consists of two open stone-filled ponds (leach beds) constructed in series preceded by a wetland to settle metals. An open limestone channel drains the system and adds additional alkalinity.



Load reductions achieved from this project:

Post project monitoring soon after completion

Acid 100.07 tons/year or 82%

Aluminum 2.08 t/y or 63%

Iron 10.68 t/y or 86%

Manganese increased by 0.03 t/y or by 32%

Recent monitoring

Acid 36.76 tons/year or 58.3%

Aluminum 2.25 t/y or 56%

Iron 12.15 t/y or 78.9 %

Manganese had a slight increase of .04 t/y

The goal of this system was to reduce the loads by 51% or 13 t/y of acid and 6.53 t/y of iron. It is common to see passive systems start off far exceeding expectations and then have the efficiency drop off but this system is still exceeding its original goals.

Muddy Creek:

Upper Muddy Creek Site (NMLRC):

This project was completed in October of this year, and consists of open limestone channels, open limestone channels lined with steel slag, and limestone leach beds.



During construction, this project ran into multiple problems due to the nature of the unconsolidated sediments found on the strip bench. The seeps on the bench would dry up and pop out in another location during the construction of the leachbeds. To remedy this situation, the contractor placed the leachbeds on the next bench

down where better material was available and installed conveyance channels to move the seep water to the leachbed. Also, due to the seep problems encountered at this site, leachbeds 3 and 4 were combined into one to collect the drainage from seeps 3 and 4. Upon collecting these flows, it was discovered that a fifth seep had contributed AMD to Muddy Creek but was hidden by the flow from seeps 1 and 2. To remedy this situation, a small collection sump and channel were installed to convey the seep into the main channel of the treatment system.

Total reduction in acid load: 96% or 92.98 t/y
 Total reduction in iron load: 99% or 3.79 t/y
 Total reduction in aluminum load: 94% or 7.63 t/y
 Total reduction in manganese load: 85% or 2.37 t/y

Greens Run:

North Fork of Greens Run Portals (NMLRC): The North Fork of Greens Run project was completed in October of 2003 and is still being monitored. It consisted of a limestone leach bed that collects AMD discharging from an open portal. The limestone leach bed then drains into an 860-foot open limestone channel. Pre-construction sampling done at the portal revealed a pH of 2.5 with an approximate calculated acidity of 1600 mg/l with an acid load of almost 30 tons per year.

Total reduction in acid load: 66% or 22.01 t/y
 Total reduction in iron load: 79% or 5.1 t/y
 Total reduction in aluminum load: 50% or 1.09 t/y
 Total reduction in manganese load: 32% or 0.1 t/y

North Fork of Greens Run Refuse (AML): This project was completed in 2003, the most recent monitoring results show reductions from this site are:

Total reduction in acid load: 11% or 1.18 t/y
 Total reduction in aluminum load: 21.5% or 0.14 t/y
 Total reduction in iron load: 52.2% or 1.46 t/y
 Manganese increased slightly.

Future Efforts in the Cheat:

There is still much to be done in the Cheat watershed so more projects are on the way. Greens Run is a sub-watershed that is receiving a great deal of attention from the NPSP. A FY 05 incremental project will support the first project on the South Fork of Greens Run and a FY 04 project will upgrade the system on the Middle Fork completed in 2002. Muddy Creek will also be receiving another CWA 319 project and Martins Creek, a heavily polluted tributary of Muddy Creek, will be the focus of major project funded by a Targeted Watershed Initiative grant.

Concerns, Recommendations & Future Actions

Funding: There are so many concerns of the participants in the NPSP and other interested parties it is difficult to know where to begin. The first one to consider should probably be funding. It has evolved that the NPSP and the CWA 319 funds are driving the processes for stream restorations and TMDL implementation. The questions are: How long will the funding last and at what level? The TMDL implementation and 319 processes have become so complex that generally it takes at least two years to get a major project installed. Is it worth starting the process in a watershed if the effort will take many years but the funding is unsure?

Yet, it has been difficult to obligate all the money that is available to the state. Primarily this is because the process has become so complex that only those agencies, watershed groups or other organizations that have the competency and resources to deal with these processes are capable of submitting project proposals. This and bureaucratic purchasing rules have limited the number of partners available and most of them are reaching capacity.

Several circumstances are occurring that should help the Program expand its partners and the number of projects. 1) The NPSP in WVDEP is getting up to full strength. Prior to the establishment of the Basin Coordinator system WVDEP just waited for proposals to be submitted which resulted in few projects and a lot of unused excess funds. The Basin Coordinators coordinate the project teams, mentor the watershed associations and seek project opportunities. 2) Watershed associations are growing in experience and capabilities, this has been supported by various state and federal programs, another concern of the possibilities of declining available funding. Watershed associations have become the local partner and driving force for action and the most effective projects are those driven by local stakeholders. 3) The southern part of the state was void of any NPSP projects, except in Morris Creek, but two large watershed associations have requested assistance in producing watershed based plans. Again, funding may be an issue since both of these groups are supported by other state and federal grants to hire paid interns and support other necessary infrastructure.

Understanding that results are vitally important to future funding it should be understood by those at the federal level, with influence over funding, that non-point source efforts may take years to show any real results. The North Fork of the South Branch took at least five years to implement but it was successful. From the perspective of West Virginia's program we are closely examining requests for CWA 319 assistance to determine if financially, technologically and politically the odds are in favor of a successful restoration before starting in any watershed. One problem that still exists is what we refer to as legacy watersheds, those priority watersheds that were selected by the Watershed Management Framework before the tightening of CWA 319 guidance. Spring

Creek is a good example of this, it has been a struggle to implement this project because of little local support for water quality projects.

Technology: The more the NPSP works in AMD issues the more we learn and the clearer it becomes that this issue is complicated and difficult. Because CWA 319 funds cannot be used in anything that will require a NPDES permit and because long term funding for operation and maintenance is non-existent at any level, the NPSP is forced to support only passive treatment of AMD. Passive treatment technology has advanced and continues to do so but many of these systems have had problems. Also, the chemical and biological actions of a passive system may not show their true results at the bottom of the channel but instead after the mixing zone in the stream. Project oriented monitoring usually takes place at the bottom of the channel. This may explain why some systems show small reductions at the project but the Cheat River itself is showing marked improvement.

The WVDEP NPSP has been encouraging and funding some monitoring in the streams at locations beyond the bottom of the channel. The Program has also been encouraging the trial of new techniques and technologies. In the end, although some systems have not worked like they were expected, the NPSP has learned a great deal. The systems are improving, the technology is improving, the expertise is improving and most importantly the Cheat River is improving.

Programmatic Issues: Prior to the passage of the Farm Bill the largest component of the NPSP was the agriculture component. Since the funds from the Farm Bill far exceed the amount of the CWA 319 funds, there are restrictions placed on 319 funding of agricultural projects. There are still some requests for 319 funding in agricultural watersheds but how to integrate the NPSP with the Farm Bill programs is a constant challenge. It has also been difficult to exercise any control on NPSP agricultural projects. For one, the practices are voluntary and dependent on the farmers' acceptance, ability to provide match and ability to implement. Another issue is that the conservation plans developed for farmers who do participate are designed and supervised by the district conservationists for the National Resource Conservation Service (NRCS) instead of the NPSP partner the WVCA. The NRCS in West Virginia refuses, as a matter of policy, to inform WVDEP of the location or other details involving any conservation plan even if it is being funded by 319 funds.

The participation in the project may be voluntary but the goals the WVDEP NPSP is held accountable to are mandatory. The lack of communication, coordination and control over some of these large projects has been frustrating. WVDEP has been pushing for a more targeted approach to installing practices and more state control over what is installed. This is not acceptable to the NRCS in West Virginia. However, some moves are being made to remedy this situation. First, the WVCA is trying to get its field staff certified as technical service providers. This would mean that the NPSP would not be as dependent

on NRCS for agricultural project management. Second, the NPSP is focusing less on actual installation of agricultural BMPs and more on complimentary efforts such as natural stream bank stabilization and failing septic systems. The upcoming Lost River project is an example of the direction the NPSP is heading in agricultural watersheds. The NPSP will fund the stabilization of farmers' stream banks if they accept fencing the stream and other Farm Bill BMPs.

During the last couple of years there has been a surge in the numbers and types of projects the NPSP has been involved in and situations arise that no one in the NPSP ever dealt with before. Considering the dredging and rip-rapping that has been done in West Virginia by state and federal agencies as well as local citizens all without a Section 404 Permit from the U.S. Army Corps of Engineers (Corps), it seemed incredulous to many of our partners that the efforts to restore streams and treat pollution would require an individual 404 permit with comment periods and other obstacles. Another contentious issue with the Corps was what exactly constituted "waters of the United States". Most of the AMD sources the Program and its partners treat are ground seeps from mined coal seams or discharges from collapsed portals or drainage across or through coal refuse piles. To the untrained eye none of these would be considered real streams. The Mudlick project in Finks Run was stopped just prior to implementation and held up for a year in discussions on this subject.

After the Mudlick incident and other problems facing program implementation a meeting was requested with the Corps to resolve some of these issues. Interested parties met at Stonewall Jackson Lake and later toured AMD treatment sites around the state. Another meeting has been called for so the Corps can train all of us on the 404 process. These meetings were valuable in that NPSP partners got to show the Corps some of the issues we deal with and the Corp representatives were able to advise us on how to proceed with permit applications. It is hoped that the result of this cooperation will be a regional permit although that is expected to take five years to achieve.

Conclusion: The NPSP success has grown significantly in the last several years despite stagnant or declining budgets. It is now recognized as a major force in both protecting and restoring West Virginia's waters. The watershed movement in the state is also growing as more citizens become involved in the effort. The monitoring, education and outreach efforts of the program are vital for this. Achieving real success is also important and the NPSP is showing real signs of success. But, it needs to be remembered that it is a long, arduous and **voluntary** process.

Major Goals for the Non-Point Source Program in FY 2006

In addition to the routine goals of supporting watershed associations and working to prevent non-point source pollution the following are the goals for the Program next year:

- Complete all FY 2003 incremental projects
 - Cheat AMD II
 - Upper Buckhannon, Finks and Pecks
 - Long Branch
 - Inwood
 - Morris Creek AMD
 - Upper Elk Logging Roads
- Establish an incremental project with a focus on failing septic systems.
- Revise the Upper Buckhannon watershed based plan
- The development and approval of two new watershed based plans
- Focus volunteer monitoring on priority watersheds to support incremental project monitoring
- Host the Mid Atlantic Volunteer Monitoring Conference
- Participate in the Targeted Watershed Initiative project in the Cheat watershed to compare passive and active AMD treatment



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FINANCIAL: FY 2005***BASE PROGRAM***

<u>AGENCY</u>	<u>FEDERAL</u>	<u>STATE</u>	<u>TOTAL</u>
WV DEPARTMENT OF ENVIRONMENTAL PROTECTION WATER & WASTE MANAGEMENT OIL & GAS	\$599,673 \$30,000	\$399,782 \$20,000	\$999,455 \$50,000
WV CONSERVATION AGENCY	\$350,000	\$233,334	\$583,334
WV DIVISION OF FORESTRY	\$90,000	\$60,000	\$150,000
WV DEPARTMENT OF HEALTH & HUMAN SERVICES	\$59,227	\$39,485	\$98,712

INCREMENTAL PROGRAM

Upper Buckannon, Finks Run and Pecks Run Project Manager	\$99,287	\$66,191	\$165,478
Spring Creek Incremental Project Extension	\$179,944	\$119,963	\$299,907
Rocky Fork Streambank Restoration Project	\$182,964	\$121,976	\$304,940
Burroughs Run & Poponoe Run Watershed Plan	\$250,000	\$2,601,760	\$2,851,760
South Fork of Greens Run - Phase I Passive AMD Treatment Project	\$61,576	\$41,051	\$102,627
Muddy Creek – Dream Mountain Passive AMD Treatment Project	\$288,391	\$192,260	\$480,651
Morris Creek/Jones Hollow Streambank Stabilization Project	\$41,139	\$27,427	\$68,566

Appendix: FY 2005 Annual Report

CWA 319 FUNDED INCREMENTAL PROJECTS IN WEST VIRGINIA, FY 2000 TO 2004

ID #	Project	County	Watershed	319 \$	Matching \$	Total \$	# Sites	Type
1	Inwood Stormwater	Berkeley	Potomac DD	\$106,800.00	\$71,200.00	\$178,000.00	1	Storm water
2	Lamberts Run	Harrison	West Fork	\$569,000.00	\$387,000.00	\$956,000.00	4	AMD
3	Muzzleloader Club AMD	Harrison	West Fork	\$106,663.00	\$78,489.00	\$185,152.00	1	AMD
4	Long Branch	Kanawha	Upper Kanawha	\$176,807.11	\$117,796.90	\$294,604.01	1	AMD
5	Morris Creek	Kanawha/Fayette	Upper Kanawha	\$341,060.00	\$539,557.00	\$880,617.00	4	AMD
6	Lower Elk River	Kanawha	Elk River	\$125,854.00	\$114,090.00	\$239,944.00	2	Roads/streambanks
7	Robinson Run	Mason	Middle Ohio South	\$80,000.00	\$53,334.00	\$133,334.00	8	Agriculture
8	North Fork South Branch	Pendleton	South Branch	\$1,047,890.00	\$908,796.00	\$1,956,686.00	27	Agriculture
9	Greens Run AMD	Preston	Cheat River	\$117,116.00	\$76,931.00	\$194,047.00	1	AMD
10	Lower Cheat I	Preston	Cheat River	\$392,559.67	\$385,000.00	\$777,559.67	2	AMD
11	Blaser Refuse	Preston	Cheat River	\$240,000.00	\$504,193.00	\$744,193.00	1	AMD
12	Greens Run AMD & Refuse	Preston	Cheat River	\$90,000.00	\$60,000.00	\$150,000.00	1	AMD
13	Lower Cheat II	Preston	Cheat River	\$420,773.08	\$280,541.00	\$701,314.08	4	AMD
14	Slab Camp Run	Preston	Cheat River	\$186,500.00	\$124,406.00	\$310,906.00	1	AMD
15	Lower Cheat III	Preston	Cheat River	\$333,829.00	\$222,552.00	\$556,381.00	3	AMD
16	Kanes Creek	Preston	Monongahelia	\$57,808.17	\$38,538.78	\$96,346.95	1	AMD
17	Spring Creek	Roane/Wirt	Little Kanawha	\$450,950.00	\$319,100.00	\$770,050.00	21	Agriculture
18	Upper Buckhannon	Upshur	Tygart Valley	\$820,004.00	\$546,074.00	\$1,366,078.00	15	Agriculture
19	Winter Feeding/Upper Buckhannon	Upshur	Tygart Valley	\$130,352.00	\$86,902.00	\$217,254.00	1	Agriculture research
20	Lower Mudlick AMD	Upshur	Tygart Valley	\$90,000.00	\$60,000.00	\$150,000.00	1	AMD
21	Upper Elk (Base funding)	Pocahontas	Elk River	\$107,090.00	\$71,712.00	\$178,802.00	1	Forestry
22	DNA Identification			\$25,375.00	\$16,917.00	\$42,292.00	1	Research
23	Watershed Based Plans			\$100,000.00	\$67,000.00	\$167,000.00	12	Planning
24	Monitoring			\$36,000.00	\$24,000.00	\$60,000.00	6	Monitoring
Totals				\$6,152,431.03	\$5,154,129.68	\$11,306,560.71	120	

Appendix: FY 2005 Annual Report

CWA 319 PROPOSED INCREMENTAL PROJECTS IN WEST VIRGINIA, FY 2005

ID #	Project	County	Watershed	319 \$	Matching \$	Total \$	# Sites	Type
1	Spring Creek Estension	Roane/Wirt	Little Kanawha	\$179,944.00	\$119,963.00	\$299,907.00	21	Agriculture
2	Rocky Fork	Gilmer	Little Kanawha	\$182,964.00	\$121,976.00	\$304,940.00	5	Stream bank
3	South Fork of Greens Run	Preston	Cheat	\$61,576.00	\$41,051.00	\$102,627.00	1	AMD
4	Muddy Creek	Preston	Cheat	\$288,391.00	\$192,260.00	\$480,651.00	1	AMD
5	Burroughs Run & Poponoe Run (MUB)	Monongalia	Monongahela	\$250,000.00	\$2,601,760.00	\$2,851,760.00	1	Urban
6	Morris Creek/Jones Hollow	Fayette	Upper Kanawha	\$41,139.00	\$27,427.00	\$68,566.00	2	Stream bank

CWA 319 PROPOSED INCREMENTAL PROJECTS IN WEST VIRGINIA, FY 2006

1	Valley #12, Kanes Creek	Preston	Deckers	\$237,694.00	\$161,775.00	\$399,469.00	2	AMD
2	Lost River	Hardy	Cacapon	\$215,694.00	\$224,951.00	\$440,633.00	4	Agriculture
3	Morris Creek Stream Bank II	Kanawha/Fa	Upper Kanawha	\$161,600.00	\$83,334.00	\$208,334.00	7	Stream bank

Totals				\$1,619,002.00	\$3,574,497.00	\$5,156,887.00	44	
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Appendix: FY 2005 Annual Report

Anticipated Costs for Completion of Non-Point Source TMDLs**Based on Submitted Watershed Based Plans**

Watershed Base Plan	Anticipated Completion Year	Pollution Source	CWA 319 Funds	Match Needed	Total Projected Cost
Little Sandy/Blue Cr	2007	roads, streambanks	\$938,312	\$625,540	\$1,730,500
	2020	septic	\$5,940,000	\$3,960,000	\$9,900,000
Upper Buckhannon	2009	mixed	\$1,290,180	\$860,120	\$2,150,300
Pecks Run	2009	mixed	\$211,443	\$140,953	\$352,406
Finks Run	2009	mixed	\$257,782	\$171,856	\$429,638
Cheat River	2014	AMD	\$12,954,000	\$8,636,000	\$21,590,000
Deckers Creek	2010	AMD	\$3,540,000	\$2,360,000	\$5,900,000
Lost River	2011	Agriculture, streambanks	\$787,200	\$524,800	\$1,312,000
Morris Creek	2008	Sediment	\$600,000	\$400,000	\$1,000,000
Lamberts Run	2008	AMD	\$867,000	\$833,000	\$1,020,000
N.F. Blackwater River	2020	AMD	\$3,312,000	\$2,208,000	\$5,520,000
Totals			\$30,697,917	\$20,720,269	\$50,904,844

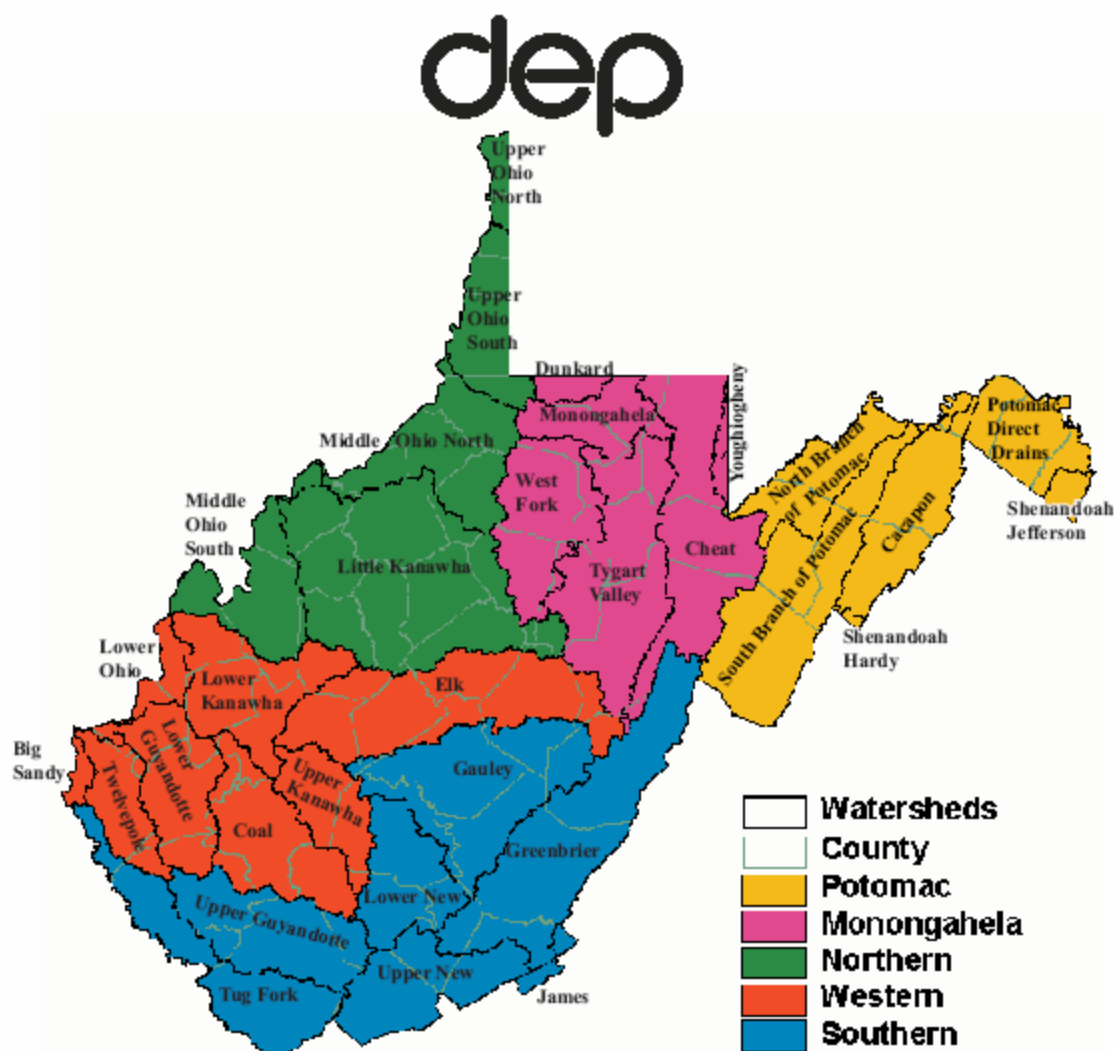
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PROJECTS IN RELATION TO WBP

WBP	STATUS	PROJECT	FY	STATUS	FUNDS
Upper Buckhannon	Approved	Upper Buckhannon	01	Completed	\$400,675
Finks Run	Approved	Upper Buckhannon	03	On Schedule	\$419,329
		Mudlick AMD Refuse	00	Completed	\$90,000
Pecks Run	Approved	Perennial Grass Buffers	01	Completed	\$130,353
Total					\$1,040,357
Deckers Creek	Approved	Slab Camp #2	03	Completed	\$186,500
		Kanes Creek	04	On Schedule	\$57,808
		Valley Highwall #12	06	EPA Review	\$237,694
Total					\$482,002
Cheat River	Approved	Cheat AMD I	99	Completed	\$120,853
		Cheat AMD II	00	Completed	\$420,774
		Cheat AMD III	04	On Schedule	\$333,829
		Greens Run Steel Slag Treat	99	Completed	\$117,116
		NF Greens Run Refuse	01	Completed	\$90,000
		Blaser Reclamation	00	Completed	\$240,000
		S.F. Greens Run	05	On Schedule	\$61,576
		Muddy Creek	05	On Schedule	\$288,391
Total					\$1,672,539
Lamberts Run	Approved	Muzzleloader Club	04	On Schedule	\$106,663
		Lamberts Run AMD	04	On Schedule	\$569,000
Total					\$675,663
Morris Creek	Approved	Morris Creek AMD	03	Approved	\$341,060
		Morris Creek Streambank I	05	Approved	\$41,139
		Morris Creek Streambank II	06	EPA Review	\$161,600
Lost River	Approved	Lost River	06	EPA Review	\$215,682
Lower Elk	Approved	Lower Elk	03	Behind Schedule	\$125,845

MAPS:

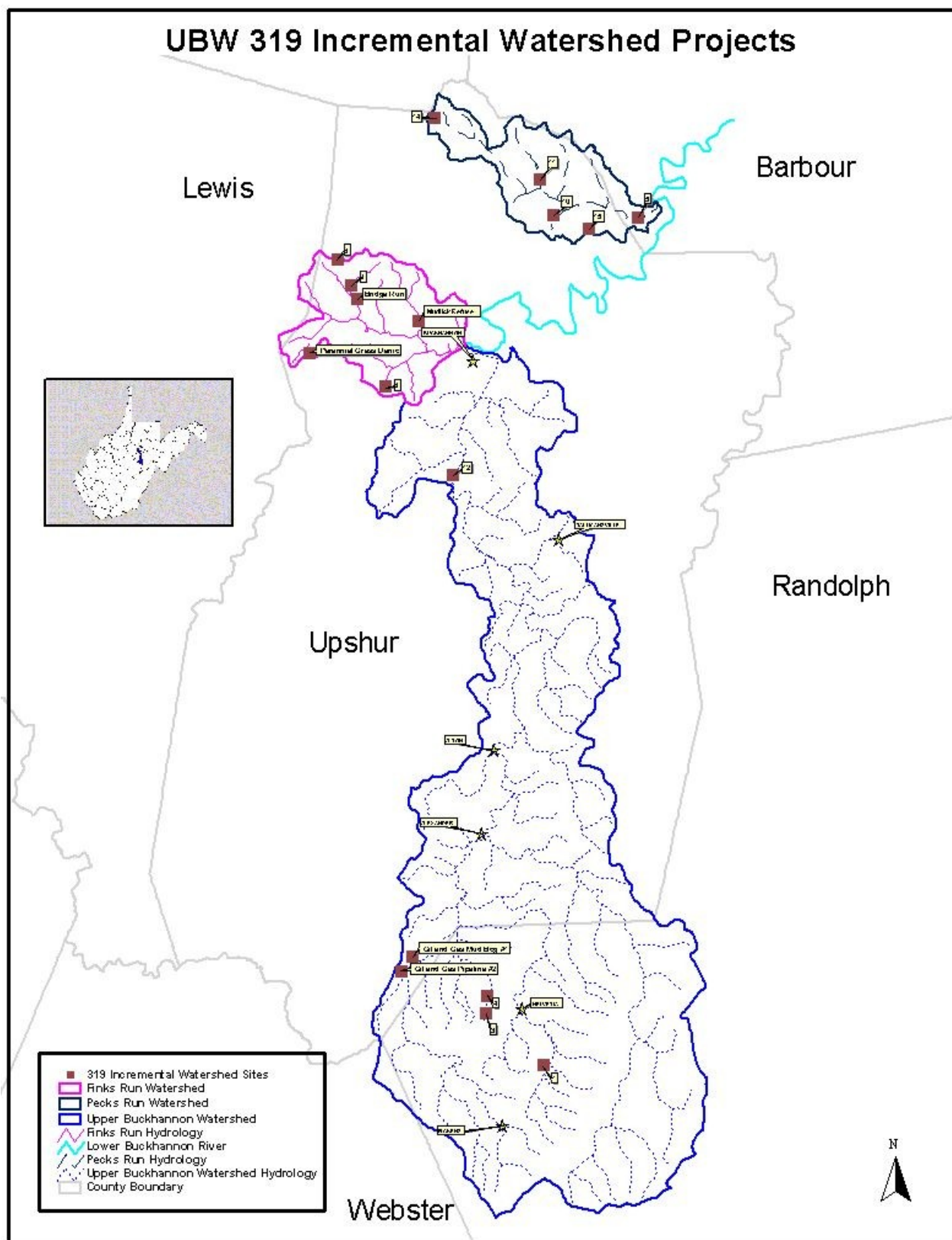
West Virginia Stream Partners and Nonpoint Source Program Regional Divisions



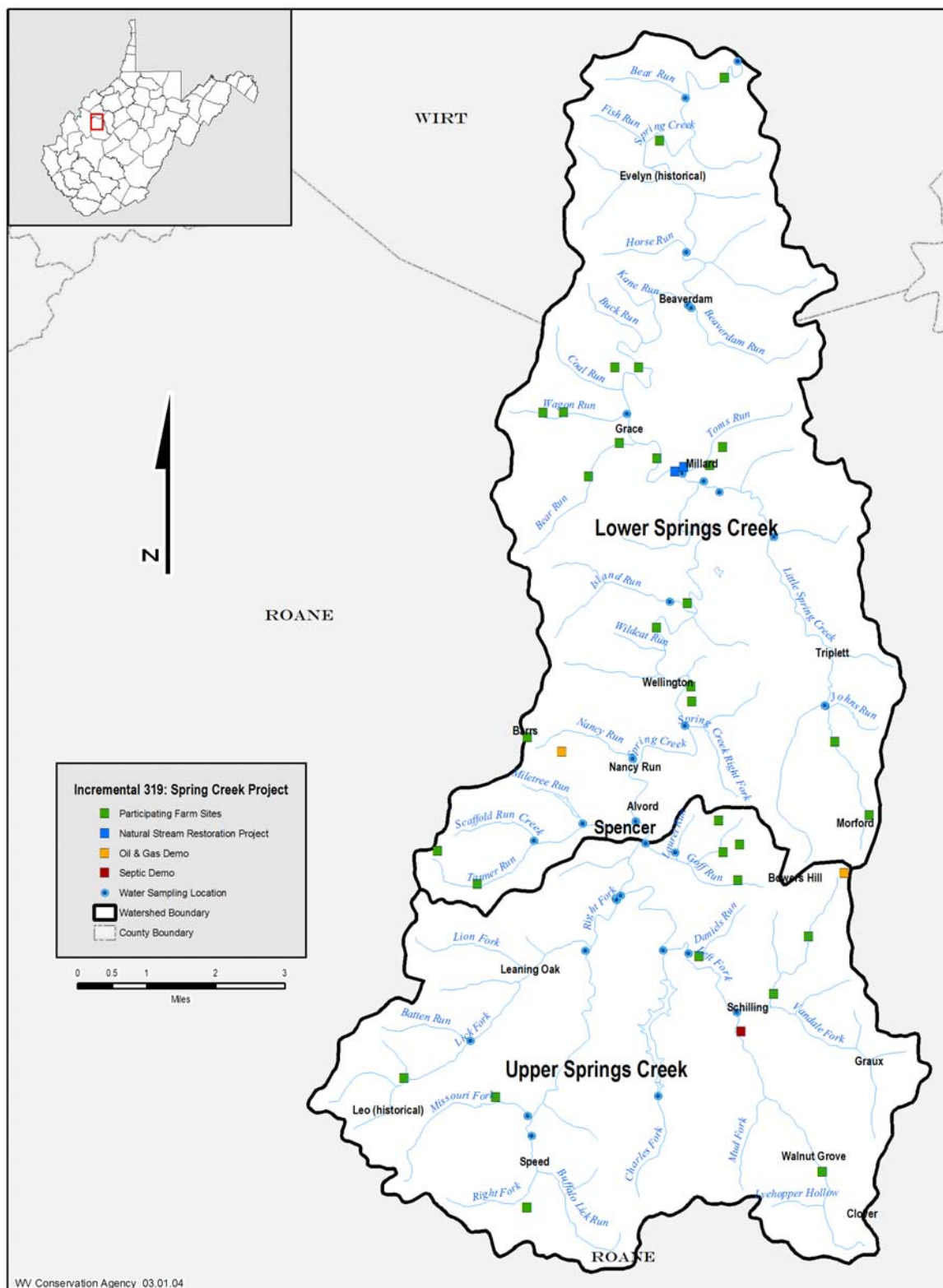
Regional Basin Coordinators

Western - vacant	jpauer@wvdep.org	(304) 926-0495
Southern - Ashley Thomas	athomas@wvdep.org	(304) 465-1919
Potomac - Alana Hartman	ahartman@wvdep.org	(304) 822-7266
Monongahela - Lou Schmidt	lschmidt@iolinc.net	(304) 783-4935
Northern - Ben Walls	bwalls@wvdep.org	(304) 420-4635

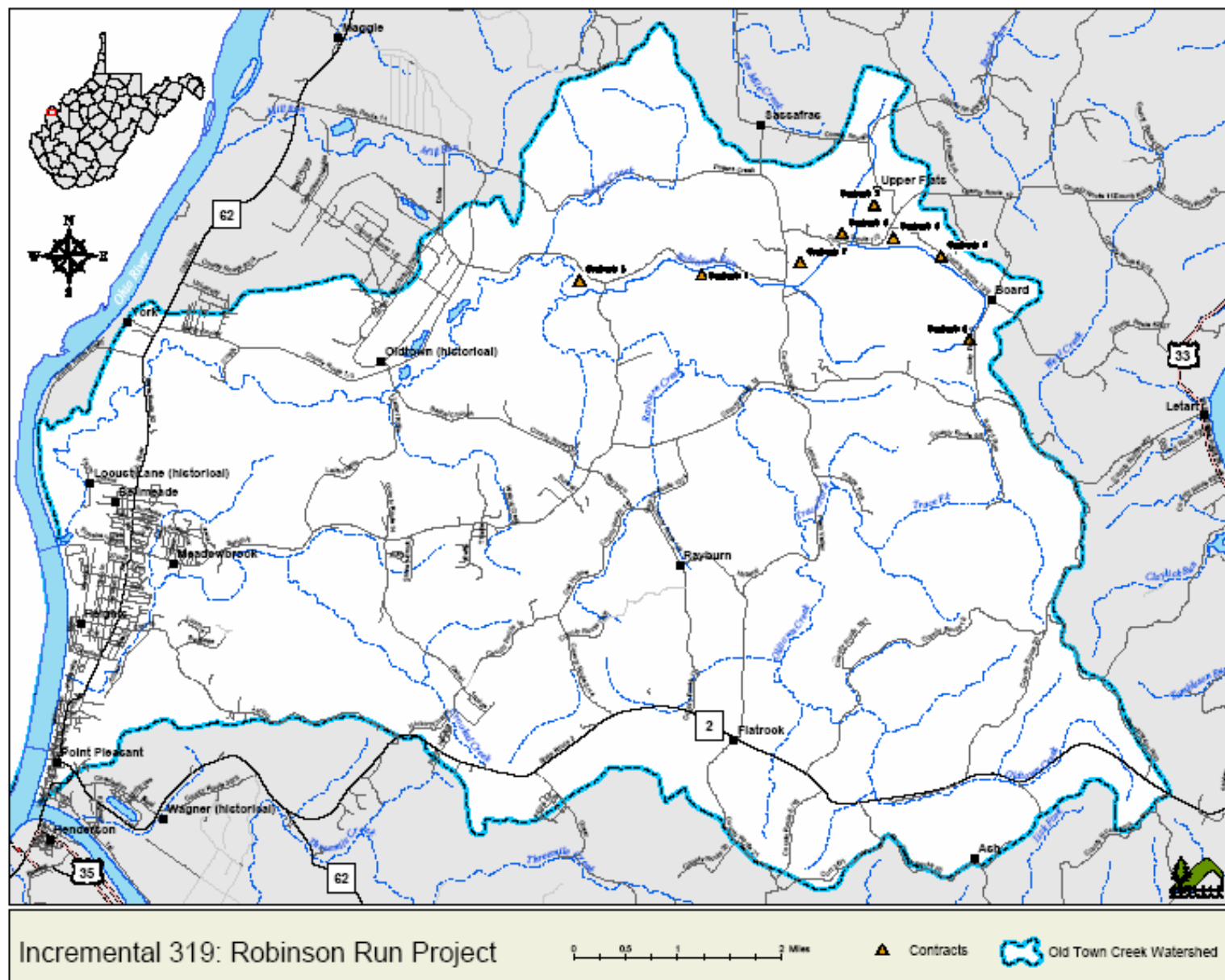




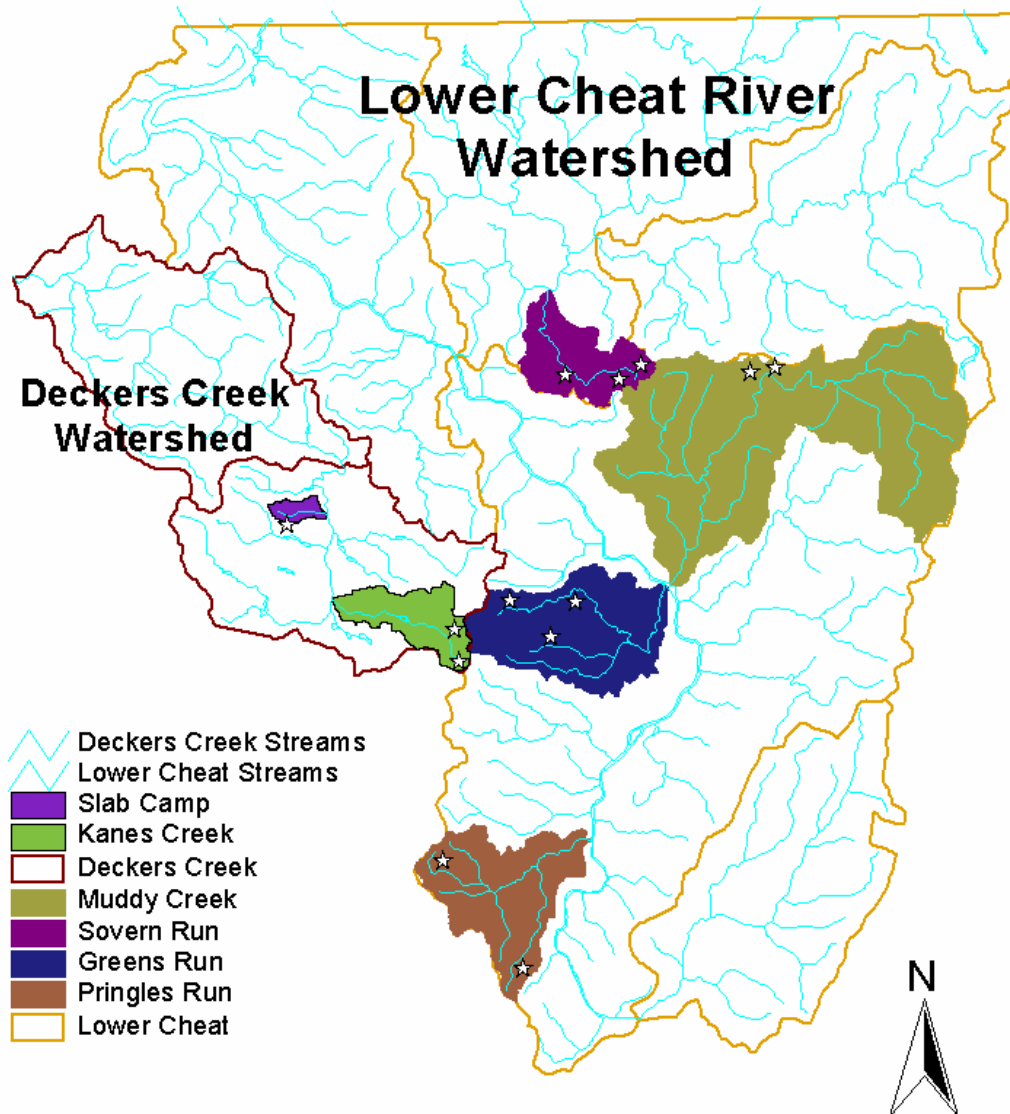
SPRING CREEK 319 INCREMENTAL PROJECT



Appendix: FY 2005 Annual Report



The Lower Cheat & Deckers Creek 319 Incremental Projects



FY 2005 NONPOINT SOURCE PROGRAM ACTIVITY

